



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,310	12/11/2001	Ritesh P. Shah	32120-CON1	4218

21567 7590 10/04/2005  
WELLS ST. JOHN P.S.  
601 W. FIRST AVENUE, SUITE 1300  
SPOKANE, WA 99201

EXAMINER

ZHENG, LOIS L

ART UNIT PAPER NUMBER

1742

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/014,310

Applicant(s)

SHAH ET AL.

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 32,34-36,38-40,42,43,47,49-51,53-55,57,58,61,68-75,83 and 84 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 32,34-36,38-40,42,43,47,49-51,53-55,57,58,61,68-75,83 and 84 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 July 2005 has been entered.

### ***Status of Claims***

2. Claims 32, 47 and 83 are amended in view of the amendment filed 21 July 2005. Claims 33, 37, 41, 44-46, 48, 52, 56, 59-60, 62-67 and 76-82 are canceled in view of the amendment. Therefore, claims 32, 34-36, 38-40, 42-43, 47, 49-51, 53-55, 57-58, 61, 68-75 and 83-84 are currently under examination.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 83-84 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, literal support for the claimed

Art Unit: 1742

center peak intensity of about 7 to about 17 random as recited in instant claim 83 and claimed center peak intensity of about 17 random as recited in instant claim 84 is not provided by the original specification of the instant invention.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 32, 34-36, 38-40, 42-43, 47, 49-51, 53-55, 57-58 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klose et al. DD 284,905 A5(Klose).

As stated in the previous Non-Final Office Action mailed on 21 October 2004, Klose discloses a tantalum alloy comprising 99.7-99.97 wt% of tantalum having a uniform re-crystallized texture with {100} plane parallel to the rolling plane and having an average grain size of 0.008 – 0.02 mm(i.e. 8-20µm) (abstract). Klose further discloses that the tantalum alloy is a sheet or a strip(abstract)

With respect to claims 32, 36, 38, 42-43, 47, 51, 53, 57-58 and 61 of the instant invention, the disclosed tantalum purity of 99.7 – 99.97 wt% of Klose overlaps the claimed at least 99.95 wt% tantalum purity of the claimed invention. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed at least 99.95 wt% tantalum purity range from the disclosed range of Klose would have been obvious to one skilled in the art since Klose teaches the same utilities in its' disclosed purity range for tantalum alloys.

In addition, even though Klose does not explicitly teach the claimed tantalum alloy shapes such as disc(i.e. thin, circular plate) or a plate as recited in claims 32 and 47 respectively, one of ordinary skill in the art would have found the claimed disc or plate an obvious variation of the sheet or strip taught by Klose since it is well settled that the shape of the claimed tantalum alloy was a matter of choice absent persuasive evidence that the particular shape of the claimed tantalum alloy was significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Please see MPEP 2144.04(IV).

Furthermore, Klose's teaching of an average grain size of 0.008 – 0.02 mm(i.e. 8-20 $\mu$ m) reads on the amended feature of average tantalum grain size of less than 50 microns. Even though Klose does not explicitly teach the claimed maximum grain size of less than 50 $\mu$ m, one of ordinary skill in the art would have highly expected that the tantalum grains of Klose inherent meet the claimed maximum grain size of less than 50 $\mu$ m as claimed since the average tantalum grain size as taught by Klose is less than half of the claimed maximum grain size of less than 50 $\mu$ m. It is noted that applicants have not shown the criticality of "the maximum tantalum grain size of less than 50 $\mu$ m" in the record. It is the examiner's position that the claimed tantalum alloy would not be patentably distinct from Klose's tantalum alloy with the same purity, the same crystallization texture and the same average grain size.

With respect to claims 34, 40, 49 and 55 of the instant invention, even though Klose does not explicitly the claimed average grain size of the tantalum alloy of about 25 $\mu$ m, the average tantalum grain size of 0.02mm(i.e. 20 $\mu$ m) as taught by Klose is close to the about 25 $\mu$ m as claimed. It is well settled that a prima facie case of obviousness

Art Unit: 1742

exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). Please see MPEP 2144.05(I). In this case, since the claimed about 25 $\mu$ m tantalum grain sized of the instant invention is close to the 20 $\mu$ m grain size of Klose's tantalum alloy, one skilled in the art would have expected them to have the same properties.

With respect to claims 35, 39, 50, 54 and 70 of the instant invention, the phrase "produced from a frictionless forged billet" is construed as a process limitation. The claimed product appears to be the same or similar to that of Klose although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. Please see MPEP 2113.

7. Claims 68-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klose et al. DD 284,905 A5(Klose) in view of Ohhashi et al. US 5,415,829(Ohhashi).

The teachings Klose are discussed in paragraph 6 above.

With respect to claims 68-69 and 71-75 of the instant invention, even though Klose does not explicitly teach that the tantalum material is a target, more specifically, a sputtering target as claimed, one of ordinary skill in the art would have found it obvious that the tantalum sheet(i.e. blank) of Klose can be used as a sputtering target since Ohhashi teaches that typical sputtering targets are made of tantalum and are of disc shaped plates(col. 1 lines 19-20 and 23-25).

Art Unit: 1742

In addition, the term "as-rolled" in instant claims 74-75 is construed as a process limitation since it describes how a tantalum target is produced. Therefore, the term "as-rolled" does not lend patentability to instant claims 74-75 without persuasive factual evidence showing the claimed process limitation materially alters the product as claimed. See MPEP 2113.

With respect to claim 70 of the instant invention, the instant claim is rejected for the same reason as stated in the rejection of instant claims 35, 39, 50, 54 and 70 above.

### ***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 32, 34-36, 38-40, 42-43, 47, 49-51, 53-55, 57-58, 61, 68-75 and 83-84 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,348,139 B1(US '139) in view of Ohhashi.

Claims 1-15 of US'139 teaches a tantalum sputtering target comprising at least about 99.95% of tantalum and substantially uniform {100} crystallographic orientation across the surface and throughout the thickness of the target, wherein the average tantalum grain size is about 25 microns and the maximum tantalum grain size is less than 50 microns. US'139 further teaches that the sputtering target is produced from frictionless forged billet.

Even though US'139 does not explicitly teaches the claimed tantalum disc, plate blank or as-rolled target, one of ordinary skill in the art would have found the claimed shapes obvious since Ohhashi teaches tantalum sputtering targets are typically a disc-shaped plate.

### ***Response to Arguments***

10. Applicant's arguments filed 21 July 2005 have been fully considered but they are not persuasive.

In the remarks, applicant argues Klose only disclosed average grain diameter and does not disclose or acknowledge the significance of maximum grain size. The examiner does not find applicant's argument persuasive since the tantalum grain size of 8-20microns as taught by Klose is far less than the claimed maximum grain size of 50microns. One of ordinary skill in the art would have reasonably expect that the maximum tantalum grain size of Klose would not exceed 50microns as claimed. In addition, the declaration under 37 CFR 1.132 filed 21 January 2005 failed to provide persuasive evidence to demonstrate the criticality of the claimed maximum grain size of less than 50 microns. More specifically, the previously filed declaration does not



Art Unit: 1742

contain factual data comparing the properties of tantalum target with maximum grain size of less than 50 microns and the properties of tantalum target with maximum grain size of 50 microns or more to demonstrate the advantages of the instant invention. Therefore, applicant's mere arguments as recited in the previous declaration are only conclusive statements which are not sufficient to overcome prima facie case of obviousness.

Applicant further argues that Klose is not analogous art. The examiner does not find applicant's argument persuasive since the instant invention claims a product. The examiner would like to remind the applicant that only instant claims 69-73 recites a tantalum sputtering target. The rest of the claims do not require that the tantalum product is a sputtering target. In addition, whether the tantalum product is used as a sputtering target as taught by the instant invention or as a spinnerets as taught by Klose merely states the intended use for the tantalum product, therefore does not lend patentability to the instant invention. In addition, Klose teaches a tantalum alloy have substantially similar purity, crystallization texture and average grain size than that of the instant invention. In view of Ohhashi's teaching of tantalum plate as sputtering target, one of ordinary skill in the art would have found it obvious that the tantalum alloy sheet of Klose can be used as a tantalum target with expected success.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

Art Unit: 1742

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700